

[54] ULTRASONIC TRANSMISSION DEVICE

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[57]

ABSTRACT

A method and apparatus for transmission of ultrasound to and reception of ultrasound from a fluid from outside its container. An ultrasonic transducer generates sound waves longitudinally in a transmission bar that has a reflecting surface at such an angle with the ultrasonic path that the longitudinal waves are internally reflected as shear waves in the direction of an interface between the transmission bar and the fluid. The impinging of the shear-mode waves on the interface results in an efficient transmission of energy into the fluid and an efficient reception of echo signals from the fluid. Since longitudinal waves are coupled from the transducer to the metal, a rigid bond between transducer and metal is unnecessary. The coupling may be achieved by means of a liquid-filled interface that does not subject the delicate transducer to damage from stresses produced by differential thermal expansions.

4 Claims, 7 Drawing Figures

